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ABSTRACT

Specific and unique information processing patterns have been developed by Black Americans as a result of coping with and adapting to a color-conscious society. A review of the literature shows that the major variation in the processing of information which seems to be uniquely Black American occurs in their patterns of perception. Specifically, the differences are in primary modality preference, cue selection, and pictorial perception. The preferred modality in the majority culture is the visual one; among Black Americans the emphasis is on the kinetic and tactile senses. In selecting cues, the majority culture looks to ideas and objects, while Black Americans look at people and events. This attention to social nuances probably is best represented in the behavioral dimension of extraversion. When it comes to organizing and analyzing information, Black Americans respond well to verbal material but, unlike the majority, do poorly in responding to pictorial representation. Although this is often seen as a deficit, it might be more appropriate to say that Black Americans have been taught to perceive, that is, visually transform, the world differently. For Black Americans, then, knowledge is gained most effectively through kinetic and tactile senses, through keen observation of the human scene, and through verbal descriptions. (CMG)

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AFRO-AMERICAN PATTERNS OF COGNITION:

A Review of the Research

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Paper presented at the annual meeting of the American Educational Research Association, New Orleans, April 1984.

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AFRO-AMERICAN COGNITIVE PATTERNS:

A Review of the Research

Cognition, in its broadest definition, represents the act of knowing. Within the act are the processes of perception, memory, mental elaboration and reasoning. Although, as Cole and Scribner (1974) point out, the processes are basically the same for all individuals, differences are noted in the way the processes are used. The basis of these variations is found in the demands of a specific ecocultural environment (Thompson, 1969; Berry 1976). The purpose of this paper is to examine the patterns of knowing which have been developed and transmitted within the Afro-American community. Such a search is built on the premise that Americans of African descent have developed a unique culture as the result of coping with and adapting to a color-conscious society and a part of that culture includes specific and unique cognitive strategies.

Identifying Afro-American differences is a perilous task in that the identified variations are generally interpreted as being deficient and negative. In spite of this difficulty, differences in the use of cognitive processes will be explored with the hope that these will be viewed as preferences or stylistic dimensions rather than badges of inferiority.

In this exploratory effort, questions undoubtedly will be raised about the wisdom of depicting Afro-Americans as a monolithic group. This occurs for several reasons. First, there is the recognition that "color" affects the environmental responses of all Afro-Americans, regardless of social class. In addition, at this point in history there still remains a viable social-cultural system which transmits both the Afro-American world-view and cognitive-behavioral patterns to all levels of the community (Blackwell, 1975).

The third reason there is an assumption of homogeneity is based upon the study by Stodolsky and Lesser (1967). They found that, although class differences were present in levels of performance, an ethnic group's overall pattern was essentially the same.

There are, of course, reasons to believe that there may be developmental and gender differences within the Afro-American community as there are in other groups. Unfortunately, the current studies of Afro-American cognition have neglected these variables, thus, individual differences are difficult to ascertain. Within the studies reviewed here, neither social class nor gender defferences were identifiable.

The studies chosen for this review will deal with school-aged children 3-21 who are native-born Afro-Americans. Studies using international samples of individuals with African heritage were not selected as it was felt that the ecological demands are not equivalent in both societies; therefore, cognitive patterns might not be similar. Also, the patterns to which we allude are not seen as innate characteristics, but socialized environmental behavior. To use African or Afro-Americans from another culture and environment seems to suggest that genetic factors are involved rather than ecocultural dimensions.

A second, and equally important, characteristic of the subjects in the studies chosen for review is that they represent a "normal" population. As Bruner (1968) points out,

> "Our insights into mental functioning are too often shaped by the observations of the sick and the handicapped. It is difficult to catch . . . man's mind . . . at its best." (p. 15)

It was this reviewer's wish to understand Afro-American cognition at its best, not after it had succumbed to the pressures of the environment.

With these general guidelines in mind, let us return to the examination of the important question: Do Afro-Americans have a unique pattern of cognitive strategies or a cognitive style? To determine the answer, it is necessary to use the information processing paradigm and examine the way in which Afro-Americans perceive, encode, represent and analyze information.

Afro-American Information Processing

The information processing model which has emerged in the last decade assumes that man's internal structures perform certain behavioral processes (Strom and Bernard, 1982). More important, the paradigm assumes an interaction between the environment and the organism rather than a reaction.

There are numerous models which have emerged to depict the process (Gagne, 1977; Das, Jarmon and Kirby, 1975; Anderson, 1980). In general, the model suggests that:

1. The information is registered through the preferred sensory modality or modalities and preferred cues are selected for attention.

2. The information is then placed in short-term memory for recognition and labeling.

3. The information is sorted, classified, and organized.

4. Following organization, the information is analyzed and incorporated; then performance requirements specified.

5. The individual decides to act or respond on the basis of the analysis of the information.

The major variation in this processing of information which seems to be uniquely Afro-American occurs in the preprocessing and central processing stages, e.g. in their patterns of perception.

Afro-American patterns of perception

Perception is the basic process of cognition as it is the process through which the living organism maintains contact with the environment (Travers, 1982). Based upon the research in the area, perception is heavily influenced by one's socialization and past experiences. As J. J. Gibson (1950) points out, individuals are taught to "see the world." This process of "seeing" involves not only the sensation or reception of the sensory stimuli, but also involves an analytical process. There is reason to believe that the perceptual process of Afro-Americans differs in style from other groups.

The question of a unique perceptual style within the Afro-American community has been around for some time. It was first raised by Tyler in 1956 and again by Mandler and Stein in 1977. Mandler and Stein (1977) point out in their examination of this issue that the question has been reinterpreted as a truism without any substantial empirical documentation. Although it is an issue which has not been confronted directly, it is one which seems to continually manifest itself as we look for a pattern which represents how Afro-American culture trains it's children to learn.

Sensory modality preference. One of the first variations noted in Afro-American perceptual style is in the preference of modalities for receiving information. Information present in the environment is registered in all six sensory channels. However, there appears to be a hierarchy of development which leads to the efficient and preferential use of the channels. According to Barsch (1971), the younger child makes the most efficient use of the gustatory, olfactory, and tactual senses. However, as learning occurs and cognitive effectiveness increases, the kinesthetic, auditory and visual modes

become the ones most heavily relied upon. As we examine the mode most emphasized in mainstream American culture, we note that emphasis is placed on perceiving via the visual channel.

The majority of the information in our society is transmitted through the visually oriented material. Vision is seen as the "queen" of the sensory registration modes and is the medium through which we attempt to assess learning ability and other aspects of cognition. If one examines the instruments on which many judgements about individuals are made such as the Raven's Progressive Matrices, the Bender-Gestalt Test the Thematic Appreception Test, the Group Embedded Figures Test and the performance tasks of the intelligence tests, one notes that these are predominantly, and almost exclusively, visual information processing tasks.

It is, however, an error to assume that all individuals have the same modality preference or the same efficiency in use. Barbe and Swassing (1979) found that individuals have a modality through which they prefer to receive information and that the preferred modality may not be vision. Wober (1966) agrees and further suggests that the demands of the environment develop this preference.

To prove his point, Wober worked with the Embedded Figures Test, the Rod-and-Frame Test, the Kohs Block Design and the Raven's Progressive Matrices. In addition to the visually oriented versions, the tests were converted into tactile and proprioceptive versions as well. The results demonstrated that the style of processing information in one modality does not correlate highly with the ability to process inforamtion in another modality. Individuals who had performed at the lower end of the continuum on the visually oriented tasks, did

better on the kinesthetic/tactile versions of the instruments. Wober concluded that there are different sensotypes. By sensotypes, Wober means the modality pattern preferred by the child for perceiving the world and upon which the child develops his/her abilities. This concept is much the same as Barsch (1971) processing mode hierarchy which is said to represent the rank order of the sensory modes in which individuals prefer to receive information.

The idea of an individual preference in modality dominance is another resurrected idea. Fernald presented the same hypothesis in 1912 and later conducted a study to identify visual learners, auditory learners and kinesthetic learners (Fernald, 1943). Like Barsch and Barbe, Fernald promotes the belief that, while all modalities are active, individuals find some modalities more effective and efficient than others. This premise leads to the question: Is there a more effective modality for learning than vision for Afro-Americans?

Charles Keil (1966) noted in his book, Urban Blues, that there are certain modes of perception more characteristic of the black community than the white community. In his explication of the various cultural components of the community, Keil writes:

> ". . . its modes of perception and expression, its channels of communication are predominantly auditory and tactile rather than visual and literate. . . . the prominence of the aural perception, oral expression and kinesic codes . . . sharply demarcate the culture from the white world . . . p. 16-17."

Other indications that Afro-Americans may have a different modality preference comes from the ethnographic study done by Pavenstedt and her associates of thirteen low income children from problem families. In the report, (Pavenstedt, et al, 1967) the observers commented that the children were rather advanced in their motor development and seemed to use visual perception

differently than usually observed. Malone (1967) noted in his part of the study that the children used vision as ways of protecting and orienting themselves in the environment rather than for gathering information.

Although the aural mode is undoubtedly a very important channel in Afro-American culture, it seems very probably that the kinesthetic mode is the primary mode of information induction for the majority of the members of the community. This supposition is made based upon the literature in the field of motor learning. The evidence has been around for some time that Afro-Americans have a high motoric capability due to their apparent sensorimotor percocity (Morgan, 1981). They also appear to use kinesics more than most groups. Guttentag (1972) for example studied the difference in the number and variety of movements of Afro-American and Euro-American four year olds. She found that Afro-American children emitted a significally greater movement responses and a greater variety. Van Alstyne and Osbourne (1937) examined the rhythmic responses of black and white children between the ages of two and six. Afro-American children were found to be 50% better than Euro-American children in following rhythms. In a similar study, Stigler (1940) compared the capacity of the two groups to perceive minute body movements by attaching a kinestemeter to study peripheral acuity. Afro-Americans were superior in their ability to perceive the slightest body movements. One might conclude from these studies that Afro-Americans are adept at gathering, using and analyzing kinesthetic information.

In his book, The Mind's Eye, Sommers (1978) details the characteristics of individuals who are high in kinesthetic imagery. These individuals can take in and elaborate in great detail spontaneous motoric responses. The description presented by Sommers closely parallels the descriptions often

noted by sociologists and anthropologists of Afro-American rhythm, spontaneity and movement as exhibited in walks, stance, dance, and athletic encounters (Pasteur and Toldson, 1982; Kochman, 1972).

Apparently, imagery is one of the best ways to study modal preferences. For example, Colvin and Meyer (cited in Barsch, 1971) read a story comprised of visual, auditory and motor words to a group of children. The children were than asked to write the story on the next day. The number of words recalled in each modality was judged to indicate the primary modal preference. Perhaps the closest use of this approach to study Afro-American modalities is the work done by Kochman in black idiom. In his study of the communication pattern, to which most Afro-Americans revert when interacting with one another, Kochman found that there was a preponderance of words which possess the quality of rapid and unrestricted movement or have the potential for such movement. Conversely, words which suggest static or impeded movement have unfavorable connotations. Kochman (1972) goes on to suggest that patterns such as the identified kinetic quality of the language have a significant influence on the minds and habits of the speakers. We assume that this pattern of kinetic preference also is operating within the Afro-American perceptual process.

Cue selection. In addition to a difference in sensory modality preference, there appears to be a variation in Afro-American cue selection.

The number and types of information to which an individual is exposed is massive; therefore, choices must be made about the cues or information an individual can address. Thompson (1969), Gibson (1969) and others suggest that a culture trains it's children to tune in on certain types of information and filter out others. Young (1974), in her examination of the socialization

process, suggests that Afro-Americans are trained to concentrate on people rather than non-people types of information. This is essentially a dichotomy of looking at people and events as opposed to ideas and objects.

Evidence of cue preference is found in several studies. Damico (1983) examined the person-vs-object hypothesis by permitting black and white sixth-grade children the opportunity to photograph school as they perceived it. Although the findings were apparently an artifact or secondary finding of a larger study, the significant difference in the types of photographs taken to depict the meaning of school seemed to support the hypothesis. Afro-American children chose to include people such as teachers or classmates in their pictures while the Euro-American children depicted objects or physical settings. Damico concluded that Afro-American children were significantly more people oriented than object oriented.

In another study, Eato and Lerner (1981) asked 183 Afro-American sixth graders to indicate their perceptions of their physical school environment and their social environment in the school. The researchers were attempting to determine which of the factors seemed to influence the children's adaptive behavior. The major factor which seemed to be most important to all children were the people in the environment, in particular the teachers. The physical environment seemed important only to the males and at a fairly minimum level.

Other indications that Afro-Americans seem to have a preference for social and people cues is found in the literature on recognition of faces and emotions. It has been found that not only are Afro-Americans better able to recognize faces and emotions than groups to which they are compared (Galper, 1973; Chance, Goldstein, McBride, 1975; Luce, 1974; Gitter, Black, Mostosoky, 1972) but they

also are extremely sensitive to social situations nuances (Hill & Fox, 1973; Witmer, Ferinden, 1970).

This attention to social nuances may have led to the results which Sherif (1973) observed about the differences in categorization of situations. In this study Afro-Americans and Euro-American students were asked to analyze and sort situations which were acceptable for participation in terms of interracial interactions and those which were unacceptable. Afro-American students were found to make their decisions based upon the interpersonal demands and the possible social effects on the person while Euro-American students categorized situations based upon the formal demands of the settings. Again, for Afro-Americans people took precedence over rules and context.

Other indications that the interpersonal domain has a primary spot in Afro-American attention is found in the research on learning styles. Afro-Americans seem to prefer affective materials to facilitate their learning (Rychlak, 1975), warm and supportive teachers, (St. John, 1971), and a socially interactive environment (Slavin, 1983; Cureton, 1978). As Morgan (1981) points out in his examination of the learning style of Afro-American children, "It appears as though the social interaction model provides an atmosphere in which black children can do well."

This information preference pattern probably is best represented in the behavioral dimension as <u>extraversion</u>. Although there are many interpretations of the extraversion-introversion dimensions, the one which seems to best fit the information processing paradigm is the conceptualization by Carl Jung. According to Jung, (1923) extraversion represents a preference for and attention

to the external world rather than the internal world of ideas, concepts or insights (intraversion). The choice manifests itself in the preference for action, for involvement and for being a part of the human scene (Myers, 1980). The Myers-Briggs Type Indicator measures extraversion based upon Jung's interpretation.

Using a group of 758 undergraduates at Howard University, Levy, Murphy and Carlson (1972) administered the Myers-Briggs Type Indicator at two different times in order to establish the test's reliability for their population. A comparison of the 146 males of the sample with a Euro-American sample from Amherst revealed that a larger percentage of the Afro-American population, fell in the extraverted category than in the intraverted categories than occurred with Euro-American males. A similar finding emerged in a recent study of ninth-grade students done by this author (Shade, 1983). When viewed in toto, both the Afro-American and Euro-American groups were extraverted. However, when divided by achievement level, the Afro-American high achievers and the Euro-American low achievers were extraverted, while the Euro-American high achievers and the Afro-American low achievers preferred their internal world.

When Morris (1979) reviewed the literature on extraversion-introversion, he noted that, in general, most children are externally oriented until around ages 12 and 13 and up to that point extraversion is highly correlated with school achievement. After that age, students who do well become more introverted and introversion becomes more highly correlated with achievement. For Afro-Americans, it is interesting to note that the developmental change occurs only for the high-risk students who are not finding much success in school while Afro-American students who manage to succeed maintain their orientation toward social interaction and involvement.

Farley (1974), in his studies of cue preference and motivation has proposed that extraverts are individuals seeking stimulation from their outside world and in their search look for a variety of stimuli, complexity, novelty, and activity. Although he uses a different terminology, it appears that this is the same description Boykin (1979) gives of Afro-American children in his discussion of psychological and behavioral verve. According to Boykin, Afro-American children seem to prefer and need a variety of information at a constantly changing pace and seem to have little tolerance for monotonous or low-level activity. Euro-American children, on the other hand, seem to be able to tolerate a more low-keyed and less varied type of activity.

An interesting by-product of this orientation, according to Farley (1981) is that this preference for high stimulation or extraversion is believed to be predictive of creative performance and a highly creative personality. Perhaps it is. In a study of the performance of 70 Afro-American eighth-grade students in Northeast Georgia on various creative and cognitive measures, Richmond (1971) found that Afro-Americans were superior to Euro-Americans on the test of figural elaboration. This task is seen as a test of ability to elaborate, embellish and develop ideas and a high sensitivity in observation. It is one of Torrance's tests of creativity. While the evidence that this group of students was extraverted comes from the author's own observation of their intensity and personal involvement in the testing situation and their friendliness toward the examiners, the finding does raise the question of the possibility of a relationship between Afro-American cue preference and creativity as suggested in Farley's theory.

Information analysis and organization. In addition to the differences in modality preference and cue selection, variations are also noted in the second component of perception: analysis and organization.

To handle the many types of information with which individuals are bombarded it is necessary to learn to discriminate and group the various bits of data into broad and generalizable categories. This segmentation and division of the world is quite arbitrary and many theorists suggest that the categorization of information is rooted in the cultural dimension of the individual (Rosch, 1974).

The evidence about Afro-American encoding patterns is rather limited with the majority of the evidence found in the studies of conceptual differentiation. Of the studies available, it appears as though Afro-Americans group information about objects, as well as people and events, differently than other groups. Sigel, Anderson, and Shapiro (1966), for example, found that Afro-Americans tended to categorize objects based upon pictorial representations of those objects in a more relational or wholistic manner rather than an analytical or detail oriented manner. Orasanu, Lee and Scribner (1979) found that Afro-Americans tended to sort word lists on the basis of their functional use while Euro-Americans used a more taxonomic, descriptive approach. As previously mentioned, Sherif (1973) found that Afro-Americans categorized situations differently than Euro-Americans.

The difference manifested in the sorting behavior of Afro-Americans may be a difference in cognitive strategies with Afro-Americans apparently proceeding with a top-down processing approach rather than the bottom-up approach most often used in teaching (Anderson, 1980). On the other hand, this variation noted in perceptual analysis and organization may be based upon "what" is being discriminated. This is to say that the types of tasks used to assess categorization behavior may not be registering a difference in processing but rather in what is being perceived (Cole, Gay, Glick, & Sharp, 1972).

Sigel, Anderson and Shapiro (1966) noted for example, that while class and IQ did not seem to make a difference in the sorting behavior manifested, the method of presentation did have an effect. Some children within their sample did not respond to pictorial representations of the objects at all, but did very well in response to the objects themselves. In research by this author, only a slight difference was noted between Afro-American and Euro-American students on the Clayton-Jackson Object Sorting Task which is a written list of objects to be categorized. A highly significant difference was noted, however, in a pictorial task in which the students were asked to discern similar characteristics of objects and select another which was comparable (Shade, 1983).

There is a general assumption that any mode of presentation will elicit the same type of categorizing behavior (Sigel, Anderson, Shapiro, 1966). This may not be the case.

Mangan (1978), Kennedy (1974) and Hagan and Jones (1978) point out that interpretations of visual images are learned within the cultural milieu of the individual. Images which may have cultural interpretations include photographs, images representing spatial information, geometric forms, and line drawings. Teaching the decoding of these representations is analogous to teaching children to read the written word (Mangan, 1978). Thus, a pictorial image should not be expected to convey the same information to all individuals or groups. If we assume, then, that the pictorial representations as found in the Matching Familiar Figures Test, the Raven's Progressive Matrices, the Bender-Gestalt Test and other such instruments are <u>not</u> the nonsymbolic representations of the world they are purported to be, we can also assume that Afro-American children may be seeing and registering different information from these tasks than expected.

The possibility that variation in performance on pictorial psychometric tasks is due to processing differences rather than ability differences was the basis for the study conducted by Blaha, Fawaz and Wallbrown (1979). These researchers administered the Bender-Gestalt, the Goodenough Draw -A- Person Test and the Matching Familiar Figures Test to 74 middle-class Afro-American students in the first grade. The tasks were then correlated on the basis of the subprocesses involved in the information processing paradigm and IQ. The results demonstrated that 9% of the variance in performance was accounted for by intelligence, 6% of the variance by visual-motor integration and coordination, 3% by the response time, and the remaining variance, or 16%, was accounted for by the perceptual process in the information processing model.

Using the supposition that there may be a difference in what is being perceived when the information appears in pictorial form, previous studies of Afro-American cognitive patterns were re-examined by identifying the task requirements of the tasks Afro-American students were asked to complete.

In the study of various ethnic groups, Stodolsky and Lesser (1967) used four tasks. A verbal ability task which required memorization of verbal labels; a reasoning task which required the formation of concepts; a number facility task in which students used various arithmetic processes; and a space conceptualization task which required students to interpret pictures by visualizing movement, spatial relationships or size. Results indicated that Afro-Americans did best on the verbal, then the reasoning and number tasks, and ended up as the lowest of the four ethnic groups on the space conceptualization task. This pattern was found for both the middle and lower class sample as well as in the sample from another city.

Rohwer (1971) also examined the cognitive patterns of Afro- and Euro-American children who were five to eight years of age. Large differences were found between the groups on the pictorial vocabulary task (the Peabody Picture Vocabulary Test) and the Raven's Progressive Matrices, a test which requires the completion of a pictorial pattern series. Little, if any, difference was found on the learning proficiency task which required the learning and transformation of verbal pairs. This same type of disparity is found throughout the literature with Afro-Americans doing as well, if not better, than their age group on tasks using aural perception, but poorly on tasks requiring visual picture perception (Hall and Kaye, 1977; Guinaugh, 1971).

Backman (1972) in her study of patterns of cognitive abilities of talented youngsters from four racial groups in the ninth through the twelfth grades compared the groups using several achievement tests, a visual reasoning task, a task measuring perceptual-motor coordination and memory. The results reported indicated that Afro-Americans, regardless of socioeconomic status, had high scores on the perceptual speed and accuracy task but ended up as the lowest of all the ethnic groups on the visual reasoning task.

In their review of the perceptual difference manifested by people of Afro-American heritage, Mandler and Stein (1977) point out that this same pattern between verbal and pictorial representations appears in the literature on intelligence test performance. When the verbal and performance IQ scores are compared, little, if any, difference is noted on the verbal subtests, but consistently lower scores are found on the visual-spatial performance tasks, i.e. the Block Design Test, the Object Assembly and the Picture Completion tasks (Young and Bright, 1954; Davidson, 1950; Teahan and Drews, 1962). A

similar pattern emerged in a study done by Vance, Hankins and McGee (1979) using the WISC-R. Farnham-Diggory (1970) reported similar findings in her examination of information processing by young children. She found that Afro-American children did well in the processing and synthesizing of verbal material, but poorly on visual material which required analysis and organization.

A similar pattern of verbal and pictorial processing differences was found in the study by A. R. Jensen (1973). Children at the fourth, fifth and sixth grades representing three ethnic groups were given a rather extensive battery of standardized tests. Rather than identify differences on each measure, basic underlying processes were factored out and three factors emerged. Factor one was found to load heavily on all of the verbal-type tests in the battery; factor two was represented in the pictorial type tasks; and factor three included those tests requiring memo tion. Although Jensen labeled each factor as a type of intelligence, they could just as easily have been labeled as types of information to be processed.

In addition to the intelligence measures and such tests as the Raven's Progressive Matricies, attention must also be paid to tests such as the Bender-Gestalt, the Thematic Appreception Test and the Rorschach. In studies using each of these measures which require pictorial/visual information processing, Afro-Americans end up with lower or different than expected performances (Henderson, Butler and Goffeney, 1969; Albott and Gunn, 1971; Marmorale and Brown, 1977). It is also interesting to note that the Alpha and Beta tests used by the Army as the first classification test and which set the stage for the consistent labeling of Afro-Americans as inferior beings also contained a substantial number of subtests which required visual information processing (Jenkins and Paterson, 1961).

Finally, attention must also be given to the test most often used to study cognitive style, i.e. the Embedded Figures Test, another visual processing task. As with the instruments, Afro-Americans end up with lower scores suggesting that they are more likely to be field-dependent (Perney, 1976; Ritzinger, 1971; Schratz, 1976; Gamble, 1971; Shade, 1984).

For each of these instruments a less than expected performance by Afro-Americans has been interpreted as some type of a deficit. Mandler and Stein (1977) suggest that a deficit approach is inappropriate. A more plausible explanation may be that Afro-Americans have merely been taught to perceive that is to visually transform, the world differently.

Conclusions and Summary

How do Afro-Americans come to know the world? From all indications their knowledge is gained most effectively through kinetic and tactile senses, through the keen observation of the human scene, and through verbal descriptions. This difference in perception manifests itself, not only in world view, but also in modality preference, cue selection, and pictorial perception. Although our examinations of the effect of melanine may lead to an additional factorial contribution to the difference in the perceptual process (Pasteur and Toldson, 1982; Stewart, 1981), at this point in time culture appears to be the major "progenitor" of this variation.

The evidence that these patterns exist, while sufficient to produce a strong intuitive argument, is really insufficient to produce the types of changes necessary in the teaching-learning process and in the assessment of skills. There is an overwhelming need for a cadre of scholars to examine these issues in the laboratories and in the field in an effort to support

these propositions. With substantiation, it would then be possible to encourage a more concentrated and positive look at modality-based instruction, a less value oriented approach to the differences in cognitive style, and perhaps, a process, rather than ability, orientation to the concept of intelligence.

The type of learner described by these patterns who can tolerate and live with diversity and variety, who can conceptualize the world as a whole rather than just in its parts, who is personable and an exceptional observer and interactor with society is exactly the type of person Toffler suggests will do well in "The Third Wave" civilization. If this is the case, these traits not only epitomize Afro-Americans but will be the type of cognitive patterns promoted for society in general. Understanding these dimensions, then, becomes not only a defense against past judgements, but also and more importantly, the basis for the development of the capacity to adapt to our future existence.

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